

## FORMATION OF SELF-ASSEMBLED MONOLAYERS ON SILICON SUBSTRATES

### ABSTRACT OF THE DISCLOSURE

[0180] This invention provides a new method of forming a self-assembling  
5 monolayer (SAM) of alcohol-terminated or thiol-terminated organic molecules (*e.g.*  
ferrocenes, porphyrins, *etc.*) on a silicon or other group IV element surface. The assembly  
is based on the formation of an E-O- or an E-S- bond where E is the group IV element (*e.g.*  
Si, Ge, *etc.*). The procedure has been successfully used on both P- and n-type group IV  
element surfaces. The assemblies are stable under ambient conditions and can be exposed  
10 to repeated electrochemical cycling.